UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,136	01/20/2001	David S. Hardin	00H1450	7332

24234	7590	02/20/2004

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ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2001*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-28 are presented for examination.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claims 1-28 of the claimed invention is directed to non-statutory subject matter.

Specifically, Claims 1 and 26-28 are directed to method steps which can be practiced mentally in

conjunction with pen and paper, therefore they are directed to non-statutory subject matter. As

claimed, it is uncertain what performs each of the claimed method steps. Moreover, each of the

claimed steps, <u>inter alia</u>, establishing, initiating, assigning, running, determining, can be

practiced mentally in conjunction with pen and paper. The claimed steps not define a machine or

computer implemented process [see MPEP 2106]. Therefore, the claimed invention is directed to

non-statutory subject matter. (The examiner suggests applicant to change "method" to

"computer-implemented method" in the preamble to overcome the outstanding 35 U.S.C. 101

rejection).

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. The resulting claims do not clearly set forth the metes and bounds of patent

protection.

The claim language in the following claim is not clearly understood:

>   (1)   As per claims 1(line 8-9), 13, 20-21, and 28 recites, "determining
>
>   whether a virtual machine has <u>any</u> action to perform during its assigned
>
>   partition and will thus be inactive during its assigned partition." This
>
>   phrase is indefinite because it is unclear whether applicant intends that if a
>
>   virtual machine has <u>no action</u> to perform, then it will be inactive or if a
>
>   virtual machine has an action to perform then it will be inactive.
>
>   (2)   As per claim 17-18, line 2, it is unclear what "aJ-80/aJ-100
>
>   processor" means (i.e. what the abbreviation of aJ stands for)
>
>   (3)   As per claim 19(line6), and 22-27, it is not clearly indicated what
>
>   is the determination criteria for the VM to be <u>inactive</u> (i.e. <u>no action</u> to be
>
>   performed?)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a person
having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
manner in which the invention was made.

7. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being obvious over Jensen et al.,

USPN 6,587,937, in view of Dent, USPN 6,438,557.

8. As per claim 1, Jensen teaches the invention substantially as claimed including the

method comprising the steps of:

establishing a plurality of virtual machines (col.3, lines 38-39);

establishing a plurality of partitions of processor time(60, FIG.4, col.3, lines 53-

54);

assigning each virtual machine of the plurality of virtual machines to a partition of

the plurality of partitions (FIG.4, col. 3, line 57-58); and

running, on a single processor, each virtual machine during its assigned partition

(col. 3, lines 45-46).

9. Jensen does not teach determining whether a virtual machine has any action to perform

during its assigned partition and will thus be inactive during its assigned partition.

Specifically, Jensen does not teach the step for detection of no activity and thus

transitioning to inactive states.

Dent teaches the step of determining inactivity in a device (FIG.4, col.1, lines 36-38;

col.5, lines 42-45) for the purpose of conserving power consumption.

10. It would have been obvious to one of ordinary skill in the art to combine the teachings of

Jensen and Dent because Dent teaches the step of determining inactivity and thus

transtion to a power-saving mode thereby decreasing the amount of electricity used which

translates to a savings in operating costs, longer operating times especially in cell phones

and portable computers such as laptops or notebooks (col.15, lines 10-12).

11. As per claims 2-3, Jensen does not specifically teach the plurality of virtual machines

comprises a plurality of JAVA virtual machines. However, it would have been obvious to

one of ordinary skill in the art to include the JAVA virtual machines (JVMs) because

JAVA is a well-known virtual machine that is platform-independent that allows for a

portable programming environment (col.1, lines 54-56; lines 60-61).

12. As per claim 4, Dent teaches wherein said assigning step takes into account results of

prior determining steps (col.5, lines 24-32) in making a decision for the next process

step.

13. As per claim 5, Jensen teaches establishing a plurality of partitions of processor memory

(FIG. 2, col.4, lines 6-8).

14. As per claim 6, Dent teaches the step of determining inactivity in a device and placing

the single processor into a reduced power mode e that has been determined to be inactive

by said determining step (col.5, lines 41-45).

15. As per claims 7-8, they are rejected for the same reasons as claims 2-3 set forth

hereinabove.

16. As per claim 9, the combination of Jensen and Dent does not specifically teach wherein

the reduced power mode is terminated at the end of the partition assigned to the inactive

virtual machine. It would have been obvious to one of ordinary skill in the art to include

terminating the reduced power mode at the end of the partition because each virtual

machine operates in its own time slot or partition thus achieving temporal and spatial

isolation. (col.3, lines 50-51).

17. As per claim 10-12, Dent teaches reassigning, to another virtual machine, where

previously assigned virtual machine has been determined to be inactive (col.5, lines 33-

45).

18. As per claims 13 and 20, it is rejected for the same reasons as claims 1 and 6 set forth

hereinabove.

19. As per claim 14, Jensen teaches wherein said processor comprises an embedded, low power processor (col.1, line 15).

20. As per claims 15-18 and 28, the combination of Jensen and Dent does not specifically teach wherein the processor is an embedded, low power JAVA processor or specifically the aJ-80 or aJ-100 processor. It would have been obvious to one of ordinary skill in the art to use the type of processor that is most efficient including aJ-80 or aJ-100 processors because of the cost benefits and increased performance.

21. As per claim 19 and 22, it is rejected for the same reasons as claim 13 set forth hereinabove. In addition, Dent also teaches activating a subsequent virtual machine during a partition assigned to an inactive virtual machine (col.2, lines 33-36; col.4, lines 66-67).

22. As per claim 21, it is rejected for the same reasons as claim 1, 6, and 10 set forth hereinabove.

23. As per claim 23, it is rejected for the same reasons as claims 1,6, and 19 set forth hereinabove.

24. As per claims 24 and 26, they are rejected for the same reasons as claims 4 and 19 set forth hereinabove.

25. As per claim 25, it is rejected for the same reasons as claims 4,10, and 19 set forth hereinabove.

26. As per claim 27, it is rejected for the same reasons as claims 4, 10, and 19 set forth hereinabove.

27. As per claim 28, it is rejected for the same reasons as claims 1 and 13 set forth hereinabove.

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kou, USPN 5,978,923, teaches power management in a computer system.

Gee et al., USPN 6,374,286, teaches multiple JAVA Virtual Machines on a single processor.

Wong-Insley, USPN 6,122,745, teaches power management in a Java operating system environment.

Diepstraten et al., USPN 6,260,150, teaches power saving mode when all contexts are inactive.
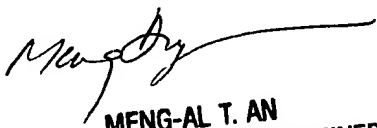
Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Anh T Nguyen whose telephone number is (703) 305-8649. The

examiner can normally be reached on Monday-Friday from 7:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An, can be reached on (703) 305-9678. The fax phone number for the

organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 306-5484.

Anh T. Nguyen
Art Unit 2127
February 18, 2004

MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
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